

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.-10. (Canceled)

11. (Currently Amended) A device comprising:

a pixel portion having a plurality of pixels each comprising a photoelectric conversion element and a light emitting element; and

means for determining a defective pixel,

wherein the defective pixel is determined by the steps of:

reading a first calibration sheet to obtain a first image signal of each of the plurality of pixels by using the photoelectric conversion element;

reading a second calibration sheet to obtain a second image signal of each of the plurality of pixels by using the photoelectric conversion element;

calculating a first difference between the first and second image signals of each of the plurality of pixels;

obtaining at least a value selected from a modal value, an average value and a maximum value of the first difference of each of the plurality of pixels; and

determining whether each of the plurality of pixels is the defective pixel by obtaining a second difference between the first difference of each of the plurality of pixels and the value selected from a modal value, an average value and a maximum value of the first difference of the plurality of pixels.

12. (Currently Amended) A device comprising:

a pixel portion having a plurality of pixels each comprising a photoelectric conversion element and a light emitting element; and

means for determining a defective pixel,

wherein the defective pixel is determined by the steps of:

reading a first calibration sheet to obtain a first image signal of each of the plurality of pixels by using the photoelectric conversion element;

reading a second calibration sheet to obtain a second image signal of each of the plurality of pixels by using the photoelectric conversion element;

calculating a first ratio between the first and second image signals of each of the plurality of pixels;

obtaining at least a value selected from a modal value, an average value and a maximum value of the first ratio of the plurality of pixels; and

determining whether each of the plurality of pixels is the defective pixel by obtaining a second ratio between the first ratio of the plurality of pixels and the value selected from a modal value, an average value and a maximum value of the first ratio of the plurality of pixels.

13. (Original) A device according to claim 11, wherein the device is at least a device selected from the group of a hand scanner, a video camera, a digital still camera, a notebook computer, a mobile computer, a cellular phone, a portable game machine and an electronic book.

14. (Original) A device according to claim 12, wherein the device is at least a device selected from the group of a hand scanner, a video camera, a digital still camera, a notebook computer, a mobile computer, a cellular phone, a portable game machine and an electronic book.

15. (Currently Amended) A device comprising:

a pixel portion having a plurality of pixels each comprising a photoelectric conversion element and a light emitting element; and

means for determining a defective pixel,

wherein the defective pixel is determined by the steps of:

obtaining a first image signal of each of the plurality of pixels by using the photoelectric conversion element;

reading a calibration sheet to obtain a second image signal of each of the plurality of pixels by using the photoelectric conversion element;

calculating a first difference between the first and second image signals of each of the plurality of pixels;

obtaining at least a value selected from a modal value, an average value and a maximum value of the first difference of each of the plurality of pixels; and

determining whether each of the plurality of pixels is a defective pixel by obtaining a second difference between the first difference of each of the plurality of pixels and the value selected from a modal value, an average value and a maximum value of the first difference of the plurality of pixels,

wherein the first image signal of each of the plurality of pixels is obtained while $T > \{C \times V_p / I_d\}$ is satisfied, where T is an accumulation time, C is a capacitance of the photoelectric conversion element, V_p is a voltage applied to the photoelectric conversion element, and I_d is a dark current flowing in the photoelectric conversion element.

16. (Currently Amended) A device comprising:

a pixel portion having a plurality of pixels each comprising a photoelectric conversion element and a light emitting element; and

means for determining a defective pixel,

wherein the defective pixel is determined by the steps of:

obtaining a first image signal of each of the plurality of pixels by using the photoelectric conversion element;

reading a calibration sheet to obtain a second image signal of each of the plurality of pixels by using the photoelectric conversion element;

calculating a first ratio between the first and second image signals of each of the plurality of pixels;

obtaining at least a value selected from a modal value, an average value and a maximum value of the first ratio of the plurality of pixels; and

determining whether each of the plurality of pixels is a defective pixel by obtaining a second ratio between the first ratio of the plurality of pixels and the value selected from a modal value, an average value and a maximum value of the first ratio of the plurality of pixels,

wherein the first image signal of each of the plurality of pixels is obtained while $T > \{C \times V_p / I_d\}$ is satisfied, where T is an accumulation time, C is a capacitance of the photoelectric conversion element, V_p is a voltage applied to the photoelectric conversion element, and I_d is a dark current flowing in the photoelectric conversion element.

17. (Currently Amended) A device comprising:

a pixel portion having a plurality of pixels each comprising a photoelectric conversion element and a light emitting element; and

means for determining a defective pixel,

wherein the defective pixel is determined by the steps of:

obtaining a first image signal of each of the plurality of pixels by using the photoelectric conversion element;

reading a calibration sheet to obtain a second image signal of each of the plurality of pixels by using the photoelectric conversion element;

calculating a first difference between the first and second image signals of each of the plurality of pixels;

obtaining at least a value selected from a modal value, an average value and a maximum value of the first difference of the plurality of pixels; and

determining whether each of the plurality of pixels is a defective pixel by obtaining a second difference between the first difference of the plurality of pixels and the value selected from a modal value, an average value and a maximum value of the first difference of the plurality of pixels,

wherein the first image signal of each of the plurality of pixels is obtained while an accumulation time of the photoelectric conversion element is 0.

18. (Currently Amended) A device comprising:

a pixel portion having a plurality of pixels each comprising a photoelectric conversion element and a light emitting element; and

means for determining a defective pixel,

wherein the defective pixel is determined by the steps of:

obtaining a first image signal of each of the plurality of pixels by using the photoelectric conversion element;

reading a calibration sheet to obtain a second image signal of each of the plurality of pixels by using the photoelectric conversion element;

calculating a first ratio between the first and second image signals of each of the plurality of pixels;

obtaining at least a value selected from a modal value, an average value and a maximum value of the first ratio of the plurality of pixels; and

determining whether each of the plurality of pixels is a defective pixel by obtaining a second ratio between the first ratio of the plurality of pixels and the value selected from a modal value, an average value and a maximum value of the first ratio of the plurality of pixels,

wherein the first image signal of each of the plurality of pixels is obtained while an accumulation time of the photoelectric conversion element is 0.

19. (Currently Amended) A device comprising:

a pixel portion having a plurality of pixels each comprising a photoelectric conversion element and a light emitting element; and

means for determining a defective pixel,

wherein the defective pixel is determined by the steps of:

obtaining a first image signal of each of the plurality of pixels by using the photoelectric conversion element;

obtaining a second image signal of each of the plurality of pixels by using the photoelectric conversion element;

calculating a first difference between the first and second image signals of each of the plurality of pixels;

obtaining at least a value selected from a modal value, an average value and a maximum value of the first difference of the plurality of pixels; and

determining whether each of the plurality of pixels is a defective pixel by obtaining a second difference between the first difference of the plurality of pixels and the value selected from a modal value, an average value and a maximum value of the first difference of the plurality of pixels,

wherein the first image signal of each of the plurality of pixels is obtained while $T > \{C \times V_p / I_d\}$ is satisfied, where T is an accumulation time, C is a capacitance of the photoelectric conversion element, V_p is a voltage applied to the photoelectric conversion element, and I_d is a dark current flowing in the photoelectric conversion element, and

wherein the second image signal of each of the plurality of pixels is obtained while an accumulation time of the photoelectric conversion element is 0.

20. (Currently Amended) A device comprising:

a pixel portion having a plurality of pixels each comprising a photoelectric conversion element and a light emitting element; and

means for determining a defective pixel,

wherein the defective pixel is determined by the steps of:

obtaining a first image signal of each of the plurality of pixels by using the photoelectric conversion element;

obtaining a second image signal of each of the plurality of pixels by using the photoelectric conversion element;

calculating a first ratio between the first and second image signals of each of the plurality of pixels;

obtaining at least a value selected from a modal value, an average value and a maximum value of the first ratio of the plurality of pixels; and

determining whether each of the plurality of pixels is a defective pixel by obtaining a second ratio between the first ratio of the plurality of pixels and the value selected from a modal value, an average value and a maximum value of the first ratio of the plurality of pixels,

wherein the first image signal of each of the plurality of pixels is obtained while $T > \{C \times V_p / I_d\}$ is satisfied, where T is an accumulation time, C is a capacitance of the photoelectric conversion element, V_p is a voltage applied to the photoelectric conversion element, and I_d is a dark current flowing in the photoelectric conversion element, and

wherein the second image signal of each of the plurality of pixels is obtained while an accumulation time of the photoelectric conversion element is 0.

21. (Previously Presented) A device according to claim 15, wherein the device is at least a device selected from the group of a hand scanner, a video camera, a digital still camera, a notebook computer, a mobile computer, a cellular phone, a portable game machine and an electronic book.

22. (Previously Presented) A device according to claim 16, wherein the device is at least a device selected from the group of a hand scanner, a video camera, a digital still camera, a notebook computer, a mobile computer, a cellular phone, a portable game machine and an electronic book.

23. (Previously Presented) A device according to claim 17, wherein the device is at least a device selected from the group of a hand scanner, a video camera, a digital still camera, a notebook computer, a mobile computer, a cellular phone, a portable game machine and an electronic book.

24. (Previously Presented) A device according to claim 18, wherein the device is at least a device selected from the group of a hand scanner, a video camera, a digital still camera, a notebook computer, a mobile computer, a cellular phone, a portable game machine and an electronic book.

25. (Previously Presented) A device according to claim 19, wherein the device is at least a device selected from the group of a hand scanner, a video camera, a digital still camera, a notebook computer, a mobile computer, a cellular phone, a portable game machine and an electronic book.

26. (Previously Presented) A device according to claim 20, wherein the device is at least a device selected from the group of a hand scanner, a video camera, a digital still camera, a notebook computer, a mobile computer, a cellular phone, a portable game machine and an electronic book.